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CONFLICTS BETWEEN THE OLD AND NEW.

BY PROFESSOR S. H. CARPENTER, STATE UNIVERSITY.

THE EDUCATIONAL QUESTION.

The discussion at present going on in regard, especially, to higher education, shows that certain questions are not yet fully settled, but that the opposing views are still seeking adjustment through conflict. On one side, there is a staid conservatism that gives way but slowly before the persistent pressure of modern ideas; on the other, there is an aggressive radicalism that seeks to sweep away what it deems the rubbish of antiquated notions, to make way for the more substantial ideas of the present. In regard to primary education, modern views may be said to have won the field, while in higher education, although the influence of radicalism has been plainly felt, the general type is the same now that it was years ago, when ability to read was held to be the peculiar mark of an ecclesiastic. The idea of what education is has enlarged with the increasing knowledge of the world, but the type still remains unchanged. A hundred years ago a man could graduate at Yale or Harvard with less knowledge than is now required to enter; but the present is only an outgrowth of the original course. It was Latin, Greek and Mathematics then; and it is Latin, Greek and Mathematics yet—more in quantity, but the same in kind—with a somewhat liberal sprinkling of sciences in the regular course. In most colleges a scientific course has been established, to which, however, in the view of college men a secondary rank has been assigned, as affording inferior results.

THE TENDENCY AND SCOPE OF MODERN THOUGHT.

One great benefit of education is that it puts a man into the current of modern ideas. The tendency of modern thought is in the direction

of physics, on the one hand, and metaphysics on the other; but the metaphysics of modern times deals rather with questions of everyday life, than with those abstruse speculations which occupied philosophers of former ages, just as science has ceased to be a mere hunt for the philosopher's stone or the elixir of life. Metaphysics now discovers planets and facts in physics, before telescopes and experiments reveal them to the eye. Nature, as it is termed, has absorbed the attention of thinkers, and man's relation to the world around him is so clearly determined, that it is quite easy to ignore any relation to the world above him which science fails to grasp. The brilliancy of scientific discovery has almost blinded us to any other truth, until quite an influential class are giving the weight of their authority against the leading studies of the old curriculum, and are demanding that they be replaced with others more in accord with modern thought. The difficulty of deciding this question is increased, and every day becomes greater, by the weight of our knowledge. The scope of science has been so enlarged that to gain now a satisfactory or serviceable knowledge of any one of the Natural Sciences will require more time than twenty years ago was given to them all; while the new discoveries of the essential identity of all the varying forms of force have rendered it necessary that if a student would know anything correctly of any one science, he must know something, more or less, of all. For instance, Geology, on one side, leans upon Astronomy, and on the other upon Biology, so that a mere acquaintance with this science requires some knowledge of two others, either of which demands as much time as Geology itself. It is easy to see that if these studies are to be pursued to such an extent as to be of any value, they will absorb nearly the whole of a four years' course, and the *humanities* must be ignored altogether.

The modern application of metaphysics to practical ends has been as successful in language as in physical science, and linguistics has grown to such dimensions that a satisfactory mastery of even Latin and Greek is no longer found in the ability to translate these languages into one's mother tongue, but involves an acquaintance, more or less thorough, with the whole Aryan family of languages. Even history and antiquities must be re-read in the light of this new science, which reads upon the sculptured columns of Egypt the riddles of ages, and gives a tongue to the lettered bricks hidden for centuries in Assyrian ruins. All the past seems to be in the keeping of comparative philology, as all the future belongs to natural science. Here, then, we have a field so vast that even its cursory exploration would require a life time.

TECHNICAL COURSES AND LONGER TIME DEMANDED.

It is plain that if we would avoid rendering higher education a mere useless smattering of many things, and restrict it to a thorough and serviceable knowledge of whatever shall be attempted, our higher courses must be made somewhat technical and elective. But we are at once involved in this difficulty—these technical and elective courses demand larger faculties and costly apparatus—involving an outlay far beyond the financial ability of most of our institutions, and, if this is sought to be met by increased tuition fees, beyond the ability of a majority of students to pay. The time, also, necessary to gain what can be called an education, is largely increased, and with it the necessary cost of the education—for time, in one sense, is money—so that young men who were scarcely able to devote the time or spare the money required to complete the old curriculum, will be still less able or willing to complete the lengthened course already demanded by the increased and rapidly increasing scientific knowledge of the world. The possession of higher education will thus gradually pass into the hands of the few possessed of time and fortune sufficient to allow them to meet these increased demands, unless either the time in which an education may be gained be shortened, or the expense of its acquisition be lessened.

Time is an element in intellectual development, as in all others. A forced and too rapid growth is unhealthy. Time must be given for the accumulated material to be assimilated—and the more abundant the material, the longer must be the time. The time required for completing even the present college course cannot be shortened by lessening the amount of study required, without incurring the danger of superficiality—that bane of our times. A smattering of science is the most dangerous superficiality to which we are exposed, because of the tendency of science to affect practical results. A man may have the absurdest notions in philology without working any public injury, or committing any national injustice; but a man can hardly be ignorant of the laws of physical or political science without proving a public pest just in proportion to his influence. Instead, therefore, of diminishing its demands, science will continually increase them; and the increase of the whole body of science increases more than proportionally the demand of each, so that it is futile to attempt to meet this difficulty by going backwards. The safest conservatism not infrequently arms itself with what seems to be the wildest radicalism. Neither science nor linguistics will give way; but, on the contrary, both are making increased demands upon the student's time. Indeed, the

scope of all higher studies is so enlarging that even what may be called a rudimentary acquaintance is steadily demanding more and more. Common schools are no longer satisfied with Reading, Writing and Arithmetic, but are steadily pushing forward their prescribed limits and grasping studies which not long since were not even found in the college course. It is plain, then, that with these pressing and increasing demands, we cannot obviate the difficulty which we meet by any diminution in the number of studies, or by any lessening of the proficiency to be attained. Instead of demanding less time, we must demand more and more, in proportion to the advance of scientific knowledge.

EXPENSES REDUCED BY DIVISION OF LABOR.

But one remedy remains. We must diminish the expense. Various expedients have been devised to render a student self-supporting, but as a rule they are and must continue to be failures, ending either in a lengthened course or in deficient and superficial education. The college course is intended to give a student enough to do. The expense cannot be matterially diminished, so long as all required branches are taught in the University, for the price of a machine is determined by what it is capable of doing, and not what it does. We must apply the principal of division of labor, and do cheap work cheaply, reserving expensive machinery for expensive work. A distinction must be drawn between the college or gymnasium and the university—the one with its less expensive apparatus doing the elementary work, which usually can be be better done there than elsewhere; and the other with its numerous faculty and costly apparatus, carrying on the techincal course with adequate thoroughness to a point attainable only to concentrated effort. Much of the work that is now being done by our colleges could be done in schools of lower grade at much less expense. The rudimentary study of Latin and Greek—that is, the study of these languages so far as mere translation is concerned—could be done quite as well in the Academy as at the college, and at half the cost. The same may be said of Mathematics, and, to a less extent, of Science. It is the higher instruction that adds the cost to a course of study. This is shown by the simple fact that every well-patronized academy is self-sustaining, while a university needs a large endowment to be successful. A man must devote the best years of a lifetime to preparation before he is qualified to impart this higher instruction, which preparation becomes his capital, for the use of which he should be paid as well as for his time. To employ this man in elementary work, or in mere drill, is not good economy.

NUMBER OF SCHOOLS LESS IN PROPORTION TO GRADE.

Universities proper, as distinguished from colleges, from the very nature of the case must be comparatively few. They demand large endowments, and men of rare talents as specialists. Colleges, requiring less, are more numerous, and thus more accessible, and in this greater accessibility of subordinate schools, we think will be found the solution of the difficulty above alluded to. As studies become more rudimentary, schools become local. The primary school draws its pupils from a very small circle; the grammar school or academy enlarges the radius; while the college draws its students from a still larger area. This matter of accessibility, or nearness to market, affects the cost of an education. Statistics show that a large proportion of students attending our colleges—in some cases more than one-half—are from the immediate vicinity of the institution. And this must always remain so, because of the operation of the well-understood laws of trade. A diminution of cost stimulates demand. Following out this suggestion, we should increase the number of schools in exactly the proportion that we lower the grade, and by thus rendering education easily accessible, largely diminish its cost. A university cannot compete with a college in doing college work; nor can the college compete with the academy in giving strictly academic instruction. Even were the tuition in these higher institutions entirely free, yet the necessarry incidentals, the cost of going and returning, and the increased expense of living in a university town, will more than balance the usual tuition-fee at a local college. A university or college, then, can flourish only as it is in vital connection with schools of a lower grade, which afford students preparation, at a moderate cost, to enter upon more extended courses.—*Examiner and Chronicle.*

LAW AND ITS PENALTIES.

BY CHAS. F. EASTMAN, PRINCIPAL OF BELOIT HIGH SCHOOL.

The question as to what are the powers and duties of the executors of law towards those who violate and defy it, is every year becoming one of more interest, and an occasion of increasing anxiety to the lovers of order, the true friends of society.

A sickly sentimentality is gaining ground among our people, which regards any punishment, however well deserved, with a shudder, and leads the unthinking and the heedless to look upon the law as a tyrant; upon the *unfortunate* criminal, as the victim of oppression and a worthy object of sympathy and aid.

Capital punishment in New York city has been practically abolished, and any term of imprisonment at all proportioned to a great crime, is sure to be commuted, or, after a short time, wholly remitted. What is the result? A single copy of a N. Y. daily will give the answer. Crime stalks unabashed and unrebuked in their streets; murder is committed in broad day light; men and women who fancy they have been wronged take the punishment of the offenders into their own hands, and then the assassins deliver themselves into the hands of justice, so called, without a misgiving as to the result and very seldom do they find their confidence misplaced. Justice has come into contempt through the criminal weakness of those whose duty it is to execute its decrees. The reign of Anarchy and Mob law seems to be rapidly approaching, and can only be averted by a thorough reform that shall reach the hearts of the people and root out this preverted sentiment, that would spare the guilty. When this truth is brought home to every man whose name or voice has influence in the government of this country, that law founded on the principle of immutable justice must be supreme, and that whoever, by word or deed, stands between the criminal and the punishment due to his crime, is unfaithful to his trust and a traitor to society, then and not till then can there be security of life and property in our land.

As might be expected from the popular character of our institutions, the same tendencies that are observed in the government of the people as a whole, are found in the minor divisions of families and schools. The same pressure of public sentiment that makes juries, judges and governors shrink from the performance of their duties, is brought to bear upon the teacher also. The future of the country depends in a great measure on their firmness and adherence to the right. Liberty is restraint, and can be secured only by voluntary or compulsory obedience to rightful authority. It is one of the most important duties of our schools, to impress this truth on the minds of the rising generation, so that it shall grow with their growth, and become a controlling influence in their lives.

Law and order in the person of the teacher *must* be supreme in the school-room—and if any pupil oppose his will to any just requirement, or to that unwritten law which is the basis of all enactments, he must be made to yield or leave the school; there is no other alternative. Expulsion is a dangerous experiment both for the interests of society and of the wayward youth. The pupil in that case is not reformed, but is cast loose on the streets, and cut off from the possibility of culture. The pupil then must be made to yield by such means as the teacher may devise, and a cruel punishment is one that fails to secure

a complete submission; for in that case pain has been inflicted, and no good, nay, even injury has resulted from it. Upon our schools devolves the task of restraining the tide of lawlessness and disorder that is flooding our land; this they cannot do unless they are cordially supported by parents at home and by the public generally. This is not at present the case. People who look with unqualified disapproval upon the acquittal of Laura Fair and Edward Stokes, openly condemn the teacher who has made an earnest effort to destroy in the disposition of one entrusted to her care, the germ which needs only time and opportunity to produce the same fruit.

May the time soon come when parent and teacher shall be of one heart and of one mind in the work of teaching children the love of liberty shown in willing submission to rightful authority.—*Beloit Crescent.*

THE OPINIONS OF LEADING EDUCATORS.

BY MULEY MUSICUS.

"The early acquisition of knowledge is accounted the first object of education by most teachers and parents; and unhappily the usefulness of knowledge is more frequently estimated by its possible service to the man than by its power to stimulate the mental appetite and forward the mental development of the child. The consequence is the child studies hard, retains little, and closes his school life impressed rather by weariness with much study than by any sense of intellectual skill and power—glad to be done with study rather than to go on in his endeavors to get at the bottom of things."—JAMES RICHARDSON, in *Christian Union.*

"A careful survey of the primary and fundamental conception underlying the popular theory of education must satisfy us that a *thorough* education of the great masses of children attending our public schools was never rationally contemplated by any one."—GEORGE E. SEYMOUR, in *National Normal.*

"The children are fed on the mere husks of knowledge. Poor schools and poor teachers are in the majority throughout the country. Multitudes of such schools are so poor that it would be as well for the country if they were closed. They waste its resources. They are little else than instruments for the formation of mental deformities. They repress the native aspirations of the child for knowledge. They foster habits which are the bane of his future life."—WM. F. PHELPS.

I don't believe it. The more I read of it, the more I don't believe it. They? Whom do I mean by they? Richardson, Seymour, Phelps,

idque genus omne. What is it I don't believe? That the majority, or large multitudes, of schools all over the country are worthless, useless wasters of resources, instruments for the formation of mental deformities, repressers of native aspiratious; that a thorough education of the masses of children attending our public schools has never been rationally contemplated by any one, (If there is another plan, let us have it, we have the thousand, give us the one, and our spouse shall not be decapitated); that the consequence of a little schooling is abhorence of study without any sense of intellectual skill and power. No, I can't believe it. Yet, these are honorable men, great educators. Indeed, it seems necessary for a teacher, if he wishes to become a great educator, to prove his success by the method, *reductio ad absurdam.* How contemptible art thou, ergo how superior am I. He begins in his first school by proving—to the intense disatisfaction of his patrons—that the plan of Davies' Arithmetics is poor, the author a fool; the publishers, extortioners; that Robinson's Arithmetics are the best, in corroboration saying, "I studied them myself." He explains how very absurd is Clark; how profound is Kerl; how devoid of taste Sanders; how exquisite is Watson; what an ignoramus the previous teacher must have been. He has gained a local celebrity. He rises in his profession, takes a village school and begins life in earnest. His first operation is a complete change of books, which pleases the children, and vomits the parents—their pockets I mean. The new field requires a new effort, he must have a hobby. A village schoolmaster without a hobby is a duck without a quack.

Not noticing that the poor hack has been ridden till he is legless, he mounts the Word Method, and slings contempt and derision into the teeth of the country teacher who does not immediately straddle the tail of his hobby. He condemns the whole lot of country pedagogues as worse than useless, lazy, and caring for naught but wages. He now has a State reputation. He rises again in his profession to the dignity of a State officer. He is now in a position which gives ample scope for his wonderful powers. He shows that: Geography as taught is an outrage perpetrated on the minds of youth; Arithmetic is taught ten years too early; the English language is a grammarless language (and immediately proceeds to write a Grammar which is a poor rehash of Murray); Music and Physics, Botany and Astronomy, Physiology and Geology, besides numerous other 'ics, 'isms, and 'ologies should be taught in the common schools; and the teacher who can't pass an examination in them without ever having studied them, is a dolt, a drag on the profession, and the county superintendents should devote their whole time to kicking such out. His fame is now

washed by two oceans, and still he is not clean happy. He rises in the strength of his forte, and deals the last blow. "The whole American system of education is a disgrace to the country and the intelligence of its people, and it should be supplanted by the German." One would almost think he was *frere germain* himself of Bismark, if one judged from his attachment to German institutions. (I don't know whether he thinks the best institution of Germany the same as the Best concern of Milwaukee or not.) He is now a celebrity in America? More! the English and Dutch do know him. More! aye! the chap (Jap) from the uttermost parts of the earth, knows him, wants him. May he get him *idque genus omne.*

TARDINESS.

Tardiness should scarcely be tolerated in our schools. A great amount of time nominally devoted to instruction is squandered through the tardiness of some pupils. There must be system in the hearing of lessons in every school in order to secure the greatest benefits. All the school hours of the day should be employed by the teacher in hearing lessons or imparting instruction—there should be no time to wait for lessons to be learned. So in arranging the programme, one class recites while the members of the other classes are getting their lessons. The first part of the morning hour will be consumed in hearing the little ones spell and read, and by the time this is done the larger ones, if present at the opening of school will be ready to recite. But the chances are, if they are late, they have no time for preparation, and the consequence is little or no knowledge of the lesson is obtained, which misfortune is seldom so regarded by young pupils. But one may say, the lesson can be heard later in the day. Not so in a prosperous, well ordered school without some other class being the loser, which would be unfair to take the well earned time of prompt, industrious pupils and devote it to encourage laggards in community. In this we have reference to that tardiness that is habitual, of almost daily occurrence, and not a case of being late once or twice a month which may be unavoidable. Tardiness is simply being *behind time*; and what fortunes, reputations, and lives have been lost by some persons being behind time!

Tardy boys and girls grow up to be tardy men and women. Its mark can be seen running the whole course of their lives, never to be effaced. They rise late in the morning, are late at breakfast, late in doing the chores, late at school, late to plow, sow and reap, late to market—always tardy through life.

Teachers, your duty is not simply to teach spelling, reading and arithmetic, but to instruct in those things that tend to make character and will develop each pupil's powers into the best men and women possible. Where such tardiness exists, remonstrate with parents, explaining the management of your school and how it interferes with your success, and good will come of it. To aid you in this duty we require you to keep a record of the tardiness, and to include the same in your monthly reports to us. Finally, use the Roll of Honor to *help* you in this and other things, but do not run the school simply for the Roll of Honor.—*Circular by* WM. J. WAGGONER, *County Superintendent of Richland County.*

THE STUDY AND USE OF HISTORY.

BY D. MOWRY, WINDSOR.

The study of history is at once interesting and beneficial. It is of great interest to the curious and philosophic mind, to acquire a knowledge of human events, and of the opinions, acts and characteristics of eminent men in former periods. We desire to learn what has been done, projected and believed in past ages. Curiosity is gratified, and the story imparts much interest to every one desirious of knowing the human character. The information thus acquired is also useful; "history is philosophy taught by example." It is filled with lessons of experience, and portrays the springs of action with men of genius, power and influence in society. The ambitious and selfish cannot be expected to act the part of the true patriot. The name of BENEDICT ARNOLD may gain a place in history, but the names of those three men who would not be bribed by the British spy, will not only find their names written upon the pages of American history, but also upon the hearts of every grateful American citizen. Theirs was true patriotism.

The people should grant power only to the generous, the virtuous, and the intelligent. Many there are who think they are amply qualified to legislate before they have scarcely perused their hornbook, in politics. This is an evil of no trifling magnitude. "Quacks in politics and legislation may do as much injury as in medicine." Men are created equal and endowed with certain unalienable rights; and all ought to have the right of suffrage.

Experience in legislative concerns and a thorough knowledge of history, especially of one's own country, are great requisites to make a man a useful legislator.

It may not be necessary for him to understand the ancient languages

nor the higher mathematics; but who can deny that he ought to comprehend the principles of our constitution, and the history of his own country and of the civilized nations of Europe? The science of legislation is not attained in a day. But it is a common occurrence for a young man, inexperienced in legislation to propose changes in the laws and advocate the passage of the new ones. Stability in legislation is of paramount importance—changes should not be made, except when generally called for by the people, and demanded by inevitable changes in the condition of society. How many would prefer the public welfare to the popular favor, and seek their country's and not simply their own personal good? Especially should the history of our own country be studied, by every member of the republic. It is important that the young men of the present generation should be acquainted with the history of early settlements of the country, and the characters and opinions, struggles and triumphs of the settlers, and their descendants.

In every generation, our fathers had to contend against arbitrary power, and for civil liberty. Their story is equally instructive and entertaining. And in a republican form of government it is essential for the preservation of political freedom, that the people should be well informed, and well educated in the nature and principles of our free institutions.

"American history, like that poetical temple of fame, reared by the imagination of Chaucer, and decorated by the taste of Pope, is almost exclusively dedicated to the memory of the truly great. Within, no idle ornament encumbers its bold simplicity. As the eye wanders about its extent it beholds the unadorned monuments of brave and good men, who have bled or toiled for their country; or it rests on votive tablets inscribed with the names of the blessed benefactors of mankind."

LITERARY PATCHWORK.

BY P. P. IVERSLEE, IOLA.

"The New American Readers" are a new series of school books by Epes Sargent and Amasa May. These readers possess at least two good qualities: they are cheap, and there are only five books in the series, instead of legion. Whether they have other merits sufficient to entitle them to a favorable reception, I have no intention of deciding. If they contain many instances of such literary patchwork as that found on page 168 of the Fifth Reader, they are certainly objectionable. In support of this opinion nothing could have been more to

to the point than the following words of the compilers themselves, in preface to that book: "It has been well remarked that 'it is quite as important to teach the young *what* to read, as to teach them *how* to read.' In heeding this advice the early compilers of reading books, the Murrays, Scotts and Pierponts were far more careful than some of their successors. These have given too much space in their selections to the transitory and defective in literary worth, and excluded, as too familiar, the great masterpieces in diction and thought with which every intelligent youth ought to be made acquainted. It does not seem to have been considered, that what may have been familiar to the pupils of a past generation may be new to those of the present."

"A thing of beauty is a joy forever." A good piece, even though it may have been worn threadbare by the young reader long before he quite understood its meaning, may rise up to his memory in after years with restored and appreciated charms. Of nothing is the mind so tenacious as the forms of speech, the poems and discourses imprinted on it during its ductile days. How important, then, that these readings should all be such as are worthy of being remembered and of influencing the taste!"

The above is true, every bit of it. But if Messrs. Sargent and May think that the best English poems ought to be presented to the pupil in a mutilated state, as best fitted to influence the taste and most worthy of being remembered, they are no better off than those who have given too much space in their selections to the defective and transitory in literary worth. The piece on page 168, of the Fifth Reader, is an instance of such mutilation. It is a combination of parts of the poem "Benardo del Carpio," by Mrs. Hemans, with another on the same subject by Lockhart. By this combination, say the compilers, with "slight alterations" in the two ballads, "we get a clear story." This "clearness" consists in the omission of the 7th, 8th, 9th and 13th verses of the *complete* story, and *clear and harmonious* narrative of Mrs. Hemans, and the addition of one verse by the compilers, and the others, I presume, by Lockhart, in which is related a meaningless and foolish bravado by Bernardo and ten of his followers, before the king and court, after which "Bernardo turned upon his heel, and, smiling, passed away."

I suppose most of the readers of THE JOURNAL OF EDUCATION have heard the story of the boy who had a coat that was too short for him, and who by force changed coats with another boy, whose coat was too large. If the former boy had been to Messrs. Sargent and May's, and learned patching, he might have supplied his want, without intruding upon the rights of another. He might have procured another small

coat, made some "slight alterations" at the ends of both, and stitched the two together (of course, fastening the top end of one to the bottom end of the other). This new coat, no doubt, would have looked rather uncouth and unfashionable, but the wearer might have consoled himself with the fact that it had at least one exact counterpart in the *literary* patchwork, the "clear story" of Epes Sargent and Amasa May.

POSITION.

BY L. CAMPBELL, DOOR CREEK.

In days gone by, when algebra was studied only by the "favored few," many algebraic questions appeared in treatises on common arithmetic, accompanied with special rules for their solution. Questions involving equations of the first degree were usually solved by the rule of position. It seems that, in many of the books, this rule was simply given without a word of explanation and used only as a machine for solving a certain class of problems.

The following may be new to some, and perhaps a little interesting to those who have found difficulty in understanding the rule of double position given in most of the old arithmetics.

There are two numbers whose sum equals 48; if the less be multiplied by 5 and the greater by 3, the products will be equal. Required the numbers.

Suppose the smaller number to be 10; then 38 will, of course, be the greater number, since $48-10=38$. Now if these are the true numbers, then, according to the conditions of the question, 5 times 10 must be equal to 3 times 38; in other words, the difference of the products must be $=0$. But $38\times3-10\times5=64$, instead of 0, which shows that 10 and 38 are not the true numbers, there being an error of 64 in the result.

Let us now suppose the numbers to be 11 and 37. $37\times3-11\times5=56$, this also shows that 11 and 37 are not the true numbers, but nearer the truth than those first taken, the error being less.

Again, suppose 12 and 36 to be the required numbers. $36\times3-12\times5=48$. Here we find the error to be still less; consequently 12 and 36 are still nearer the truth.

It will now be readily seen that by the successive addition of unity to the smaller of the first assumed numbers and subtraction of unity from the greater, the error decreases from 64 to 56, from 56 to 48, and so on till the error becomes nothing; and after that, if the addition and subtraction of unity be continued, the error will increase. Since

64−56=56−48=8, it is evident that the required numbers may be found by adding as many units to the smaller of the first assumed numbers and subtracting as many units from the greater, as 8 is concontained times in the error 64. 64÷8=8; hence 10+8=18=smaller number, and 38−8=30=greater number.

It is required to find a number which being divided by 6, the sum of the quotient, dividend and divisor, will be equal to 104.

Suppose 60: then 60÷6=10, and 10+60+6=76, first result, 104−76=28, error.

Next, suppose 96, then 96÷6=16, and 16+96+6=118, second result, 118−104=14, error.

The first result being less, and the second greater than 104, shows that the first assumed number is too small, and the second too large, Hence, while the first assumed number increases from 60 to 96, the error decreases from 28 to zero, and then increases from zero to 14. Since 96−60=36, it is evident that if 36 be divided into two parts having the ratio of 28 to 14, and the greater part be added to the first assumed number, the result will be the number required.

28+14 : 36 :: 28 : 24, 60+24=84—Ans.

GRAMMATICAL BARBARISMS.

Our universally diffused common-school system of instruction, so much praised by many for its thoroughness, ought surely to secure us as a people from the wide prevalence of gross errors of speech. Untaught rustics must be expected, in any and every land, to drop down by the very force of gravity, that their untutored dulness itself has in it, into a cheap patois of their own, and into slang forms of language, which seem expressive to them, but hideous to every one else.

Nowhere does real culture show its power to rule the thoughts of men, or to charm the human ear and heart, more completely than in the sphere of language. Even the very voice of one, trained to high thought and true expression, would reveal to another who should not see his features or his form, the fact of the real and relative superiority that he had acquired. How much more may such an one be justly expected to show, in his well-proportioned and polished forms of clear natural and choice language, the truly exalting power of mental and moral cultivation upon the intellect and character.

Strange indeed, does it therefore seem to one pursuing such reflections, to find everywhere in our country so much careless indifference to the use of even proper not to say cultivated forms of expression.

Mankind are everywhere, he knows, most indomitably lazy; he remembers, too, that the tendency is strong, among the commingling elements of society, for the cultured to relax their once fixed will to rise, and relapse to former weaknesses and errors in thought or feeling, word and deed, rather than for ruder minds to ascend to new ideas and efforts; nor does he forget how the continual repetition of mistakes in one's hearing dulls and deadens the sense to their repulsiveness, and even unnaturalness. And yet a critical ear is perpetually astonished to find, how many gross errors, very gross some of them, pass current, as well as the most accepted coin of thought, with people, who live in the very best houses and are not only exceedingly careful of their attire, but even particularly desirous of shining in it to others eyes.

How abundant are grammatically barbarous expressions, north, south east and west, in rural districts, and in crowded cities, in the workshops of the laboring classes, and in the parlors of the wealthy; nor are even college-bred men always free from them in their ordinary conversation—to their shame be it spoken! There is really danger that some of them, miserable specimens of English as they are, will get themselves so fastened upon the common habit of speech among us, as to be at last accepted as in good and regular standing in it, under the decision of that practical umpire of proper forms of speech—the all but completely authoritative *usus loquendi*, or common style of speech. Who has not heard all his life-time well-to-do people, everywhere around him, say "I *done* it:" "I *see* him do it:" "It is me" and "it is him" and "her." Some have ridicuously undertaken to defend and even advocate the propriety of using "me" in such a case as a special predicate form of the first personal pronoun—comparing it with *moi* in French, as in the phrase, *c'est moi*, and so with *toi* and *lui* in lhe 2d and 3d persons. But the English "me" is just exactly the direct objective case of "I," as "him" and "her" are of "he" and "she," and can be analyzed in no other way. So, also we hear, abundantly, "you *was*," "*lay* down," "*rluise* up," "he *come* there;" and "it is only a little *ways*." Besides these terrible vulgarisms, we find almost universally, even in the most cultured classess, certain forms of expression that are utterly unjustifiable as a matter of syntax, but yet which most, at first thought, fly, at once on allusion to them, to defend. Two of them are common: one of them is this: it looks *beautifully*, or *nicely* or *prettily*. These three adverbs seem to be specially consecrated to the business of giving this mistake continual currency. With any other adverb, the combination of the the verb *look* with it would seem comical, in the highest degree. If it is proper to say that the sky looks

beautifully, it is equally so to say, that, the ox looks *bigly*, and the house looks *redly*, and the boy looks *smartly*, or, the squash looks *largely*. It should be, in each case, looks, beautiful, big, red, smart and large. Looks, hear, means, seems. What horrible Latin would it be to say—*illa videtur pulchre*, instead of *pulchra*.

The other mistake, "I had rather," or, "you had better," do so and so, is a very strange specimen of the successful establishment of a phrase in human speech, as among its best accepted forms of expression, which yet has no just foundation whatever for such a reception. No mortal can parse the auxilliary verb "had" in the case. *Had* has surreptiously crept here into the place of the verb *would*. It seems to have occurred in this way: You *would better* came to be shortened in common parlance into *you'd better*, and at some previous day when contracted forms of speech became odious, the shortened form of words, that had before been used, was thoughtlessly drawn out into *you had better*, or, *you had rather*, and it was still more thoughtlessly imitated and perpetuated and made universally common.

Let every one be thoroughly self-exacting and self-critical, in his use of language and quite as careful about his right appearance in speech to others, as with reference to his person or his dress.

Many, very many are the mistakes made in pronunciation by the average American, according to any respectable standard, English or American; which to one of scholarly tastes are exceedingly uncomfortable.—*The Interior*.

THE ANTIPODES AND PERIŒCI.

BY HEZEKIAH BUTTERWORTH, ESQ.

About few geographical positions are there more mistakes made by intelligent people than the situation of the antipodes and the periœci. It has been commonly taught in the schools, at least in New England, that the antipodes of the Eastern States, or of dwellers near parallel 40, are in China, and that the antipodes of Boston are in Peking. Of course, this error is not made by the best instructors, but it is often made, and that without correction, in the presence of the "honorable committee." Editors, too, are often as much at fault as teachers, in speaking of antipodal places. Thus, after the earthquake at Lone Pine, California, and that which destroyed a part of the ancient city of Antioch, the New York *World* published an article on these phenomena, from the pen of a correspondent, entitled "The Antipodes shaking." The editor of the *World* corrects its correspondent, who supposes that Lone Pine and Antioch are antipodal, and says: "A

point immediately under Antioch is in the Pacific Ocean, about half-way between San Francisco and the Sandwich Islands." These errors were copied by other papers.

The word antipodes is of Greek origin, from *anti*, *against*, and *pous*, *a foot*, and means literally, *with feet opposite*. Hence the Latin word *antipodes*, which is plural, and as a pure Latin plural should be pronounced as in the original, or in four syllables, *an-tip-o-des*. But, as the English word *antipode* is used, the plural of this may be formed regularly in three syllables. This pronunciation is sanctioned by Dr. Webster, and may ultimately prevail. At present, however, the best scholars give the division and the accent of the pure Latin plural.

The word literally signifies, those who have their feet against each other, or, those whose feet point toward each other; that is, those whose feet are *diametrically* opposite. As applied to geography, it means, the dwellers at the opposite extremities of the diameter of the earth.

The periœci, or periecians, are often mistaken for the antipodes. The periœci are the inhabitants of the opposite side of the globe, on the same parallel of latitude. Hence, when people say that the antipodes of the Eastern States are in China, they mean the periœci.

Two antipodal parts of the earth have the same number of degrees of latitude, one north and the other south, unless one of these points is on the equator.

Two antipodal points must be on one and the same meridional circle, separated from each other by half the circumference.

Being on one and the same meridional circle, they may differ in longitude 180°, with the exception of the poles themselves, which have no longitude.

And being separated from each other by half the circumference, they must be equidistant from the equator in opposite directions.

The longitude of two antipodal points, if east and west longitude is used, must together make up 180°, or 12 hours, one east, and the other west. The antipodes of a point in 40° north latitude and 60° east longitude are in 40° south latitude and 120° west longitude. The antipodes of a place in the eastern part of the United States, situated on parallel 40° north latitude, and on the meridian marked 7°, must be on the same parallel south latitude, and on that meridian which, added to 7°, will make up 180°, or 173°, which would be in the South Indian Ocean, a point between St. Paul's Island and Van Diemen's Land. This point would be antipodal to Boston or New York.

The following principal cities and places in the world are antipodal:

London.....	Antipodes Island, southeast of New Zealand.
New York.....	South Indian Ocean.
Lima.....	Siam.
Nanking.....	Buenos Ayres.
Quito	Sumatra.
Bermudas.....	Swan River.
Azores.....	Botany Bay.

Antipodal places have the same climate, with all of the seasons, days and nights, completely reversed. When it is noon in London, it is midnight at Antipodes Island; and the noon of the longest day at the Bermudas is midnight of the shortest day at Swan River. When the sun is rising at New York, it is setting on the South Indian Ocean.

Antipode Island, a small strip of land in the South Pacific Ocean, southeast of New Zealand, is so called because it is the nearest inhabitable point to the antipodes of Greenwich, latitude 49° 32′ south, longitue 178° 42′ east.

We said that the seasons at the antipodes were reversed. Take for example, New Zealand, which is nearly antipodal to England. New Zealand has one of the finest climates in the world. The summer is a little longer and warmer than in England, the atmosphere more moist, and fogs are frequent. Spring begins in September, summer in December, autumn in April, and winter in June. January and February are the warmest months of the year, while July is the coldest. The flowers bloom in January, and the snow falls in June.

So, in a figurative sense, antipodes means opposite. As Shakespeare says, or makes one of his characters to say, in the play:

> "Thou art as *opposite* to every good,
> As the *antipodes* are unto us."
>
> —*The Popular Science Monthly.*

"Johnny, I'm ashamed of you," said a school-ma'am to a pupil; "when I was your age, I could read twice as well as you can!"

"Yes'm," said Johnny; "but you had a different teacher from what I've got."

A boy, who was late to school, told the teacher it was so slippery that every time he took a step forward, he slipped back two. Being asked how he reached the school house at all then, he replied, "I should not, only I happened to think and turned round, and tried to go the other way."

In Sweden the proportion of inhabitants who can neither read nor write is one in a thousand. Instruction is obligatory.

Official Department.

OFFICIAL OPINIONS.

Prepared by the Assistant Superintendent.

It sometimes happens that the occasion of a question asked and answered, under this head, is a case of hardship, in which some shrewd person takes advantage of the law to prevent what may be intrinsically just and right; or to demand what under the circumstances is not fair. But when it is asked what the law allows or prescribes, the answer must be given irrespective of its effect, in any particular case. It may be hoped that these questions and answers not only give some information, but sometimes put school officers and others on their guard against measures not strictly legal.

Q. If the supervisors, in signing an order for altering a district, act under a misapprehension, and set off more land than they supposed, is the action legal?

A. It cannot be deemed illegal on this account alone. If they discover that they have made a mistake, that is a good reason why they should rectify it themselves, especially if it works injustice; and if they do not, there may be good ground for appeal.

Q. If by addition of territory to a district it becomes a joint district, is it a *new* district, and does it require a new organization?

Q. Certainly not. (See comment on section 7, in the School Code.) It simply becomes a joint district.

Q. Mr. B lived in one district, at the time of the general assessment, but after the annual meeting and after the district taxes had been voted, he moved into an adjoining district; where must his personal property pay taxes, in the former district or the latter?

A. As taxes are voted with reference to the supposed existing ability of the district to pay them, the analogy of the law, and considerations of equity would dictate that the taxes referred to should be paid in the former district. This question and answer are somewhat different from those found in the January No., p. 22. If the removal takes place *before* taxes are voted the case would be different.

Q. Can a school board close the school for a period, in case of the appearance of the small pox in the neighborhood?

A. The board must be considered to have this discretionry power.

Q. Can a school board insure the school-house, with or without the vote of the district to that effect?

A. If the board has no power to insure, the vote of the district does not confer power. Having the "care and keeping of the school-house," under section 48, it is the opinion of the attorney general that a board may insure it, if they deem it advisable. It would be well, however, to know that the district approves the measure.

Q. Has a school board any right, by law, to allow the wood at the school-house to be burnt up at evening lectures, etc?

A. No right by law. Custom generally allows it, except in cases some economical or conscientous tax-payer objects.

Q. Is a district bound by law to furnish the clerk with a copy of the JOURNAL OF EDUCATION?

A. If the clerk chooses to subscribe for it, the district is bound to provide for the payment of the subscription price.

Q. Are the dictionary, constitutions and books bought for poor children, a part of the district library?

A. Not in the sense of being books that are to be loaned out. They are for the use of the school.

Q. Is the librarian to buy books for the district library, as he may judge proper?

A. The board is to buy the books, as directed by the district. (Section 19, subsection 10.)

Q. May some of the books be in foreign languages?

A. The law contemplates English schools, and instruction in the English language, and although it does not prescribe in what language the books for the library shall be written, it is quite evident that it contemplated the English only.

Q. What reason is assigned for making the day of holding the general election a legal holiday?

A. It may be supposed that the legislature thought the business of the day to be of paramount importance to any other business, and that to make it a legal holiday would serve to invest it with more consequence. This would be good reasoning if there was more purity about the ballot box, and if patriotism and not party politics shaped our elections.

Q. Has a teacher any legal right to compel scholars to sweep the school room, or bring in fuel during the noon intermissions?

A. If the board has made it a rule that these things shall be done by the pupils, the teacher would be justified in requiring the rule to be observed. It would be a questionable exercise of authority for a teacher, on his own motion, to make and enforce such rules; but where it has been customary, the teacher is not to be blamed for conforming to the custom.

Q. Is a teacher obliged to give assistance in arithmetic out of the class?

A. This question cannot be answered, yes or no. Time may not allow of instruction, aside from that given at recitation. If it does, a little aid is not unreasonable, if asked and needed. The law does not descend to such minute questions. They should be regulated by the board and teacher, and by circumstances.

Q. I was legally hired by the board, but the clerk refuses to draw an order to pay me, as his wife wished a different person to be hired. What can I do?

A. The clerk can be compelled by law to draw the order; or, he can be removed, on petition, by the county judge.

Q. I postponed school, Christmas week, on account of the cold; must I make up for Christmas day?

A. As a general rule a teacher is entitled to count holidays occuring while the school is in session, but not otherwise. If the board closed the school, it will be fair for them to accept as many days teaching for the week, as you would have taught if the vacation had not taken place.

Q. On what basis is the tax, required by section 97, to pay the salary of the County Superintendent, etc., to be levied upon the several towns?

A. In the absence of the indication of any other basis, it must be presumed that it is to be levied in proportion to the assessed valuation of the towns. The tax for "school purposes" must not be less than the amount last apportioned to the town by the State Superintendent, but the tax required by section 97, although it is to be "added" to the county school tax, and collected with it, is distinct in its purpose.

Q. If a town adopts the "town system," must all the small children go to one primary school, some of them, perhaps, four or five miles? That is the impression here.

A. The mere adoption of the town system changes nothing as to school attendance. It puts it into the power of the town board, however, to grade the schools so far as they find it desirable and practicable. In many cases it might be injudicious to make any change of this nature, at first. In rebuilding school houses it might be desirable to have this in view. The change that could most readily be made at once in populous towns, would be to open a school of higher grade, for advanced pupils, at some central point, or make a central graded school, already existing, a town school, for such pupils, and either expedient would, in a measure, grade all the other schools; that is, separate from them some of the larger pupils.

Query and Scrap Box.

QUESTIONS ANSWERED.

We are indebted to W. H., of Eagle Point, Chippewa county, for an elaborate and ingenious solution of problem 109. He reaches the same result as Mr. Campbell, and shows, as he did, that the previous solutions were incorrect. It does not seem necessary, however, to resume the subject. We hope to hear from W. H. again.

110.—If a conical glass, whose top diameter is 5 inches and altitude 6 inches, be filled one-fifth full of water and a globe 4 inches in diameter be dropped into the glass, how much of the axis of the globe will be immersed in the water?

By similarity of triangles we find the center of the globe is $5\frac{1}{4}$ inches above the lower part of the glass, leaving a cone below the globe $3\frac{1}{2}$ inches deep and $2\frac{2}{3}$ inches across the top.

Now letting P=3.1416 &c., $\frac{2}{5}$P=contents of the glass; $\frac{5}{2}$P=$\frac{1}{5}$ contents of the glass; $\frac{2}{1}\frac{5}{3}\frac{6}{5}$P=contents of cone below the globe; $\frac{5}{2}$P$-\frac{2}{1}\frac{5}{3}\frac{6}{5}$P=$\frac{1}{2}\frac{6}{7}\frac{3}{0}$P=quantity of water immersing the globe.

This water is contained within a frustum of a cone and around a segment of a sphere, and is equal to their difference.

Let x=height of frustum and segment: then $2\frac{2}{3}$ inches=smaller base of frustum, $2\frac{2}{3}+\frac{5}{6}x$=larger base of frustum; whence $\frac{768x+240x^2+25x^3}{432}$P=contents of frustum.

Since x=height of segment, $\sqrt{4x-x^2}$=radius of base of segment; $\frac{6x^2-x^3}{3}$P=contents of segment.

$$\frac{768x+240x^2+25x^3}{432}\text{P}-\frac{6x^2-x^3}{3}\text{P}=\frac{768x-624x^2+169x^3}{432}\text{P}=\frac{1}{2}\frac{6}{7}\frac{3}{0}\text{P}=\text{water immersing.}$$

Dividing by P and reducing: $169x^3-624x^2+768x=260.8$; whence x=.5459, Answer.—S. LITTLEFIELD, *Sheboygan County.*

112.—A, B and C purchased a grindstone, for which they paid equally. The stone measured five feet in diameter and had a circle five inches in diameter at the center allowed for an eye. At the outer edge the stone measured 4 inches across the face, increasing uniformly in thickness to $9\frac{1}{2}$ inches at the circumference of the eye. Required how much each must grind off to share equally, the eye being rejected.

At the same rate of increase in thickness, the stone was 10 inches thick at the center and may be considered as composed of a cylinder 4 inches high (or long) and a cone 6 inches high, each with a radius of 30 inches.

Then $30\times30\times4\times3.1416$ or 3600×3.1416=contents of cylinder;

$30\times30\times\frac{6}{3}\times3.1416$ or 1800×3.1416=contents of cone;

and therefore 5400×3.1416=whole contents of stone with eye.

Similarly, the eye consisting of a cylinder and a cone is found to contain $61\frac{1}{24}\times3.1416$ cubic inches, which subtracted from the whole contents gives $5339.58\frac{3}{4}\times3.1416$ cubic inches to be ground.

One-third of this is $1779.86\dot{1} \times 3.1416$ inches for each man.

Then $5400 \times 3.1416 - 1779.86\dot{1} \times 3.1416 = 3620.13\dot{8} \times 3.1416$ = contents after A has his share.

$(5400 \times 3.1416) - 2(1779.86\dot{1} \times 3.1416) = 1840.27\dot{7} \times 3.1416$ = contents when C takes it.

Now let x represent the radius of the stone at any time of the grinding.

Then $\frac{x}{5}$ = the height of the cone and $\left(10 - \frac{x}{5}\right)$ = height of cylinder.

$x^2 \times \frac{x}{15} \times 3.1416$ = contents of cone; $x^2 \times \left(10 - \frac{x}{5}\right) \times 3.1416$ = contents of cylinder.

$\left(10x^2 - \frac{2x^3}{15}\right) \times 3.1416$ = contents of stone, which when B takes it = 3620.138.

Therefore $\left(10x^2 - \frac{2x^3}{15}\right) = 3620.13\dot{8}$.

Reducing $75x^2 - x^3 = 27151.041\dot{6}$ or $x = 22.8082737+$.

$30 - 22.8082737 = 7.1917263$ = A grinds off of the radius.

Again, $10x^2 - \frac{2x^3}{15} = 1840.27\dot{7}$

Reducing $75x^2 - x^3 = 13802.08\dot{3}$ or $x = 15.1911078-$

$22.8082737 - 15.1911078 = 7.7171659$ = B grinds off the radius.—S. LITTLEFIELD.

123.—Desired to know the number of newspapers published in Wisconsin, where published, by whom published, and the name of paper and editor? Also, desired to know the name of the oldest editor and paper in Wisconsin.

The first part of the information desired may be found in the Legislative Manual.

125.—Is the school law, requiring the Constitution of the United States and of the State, to be taught in the common schools of the State, desirable and wholesome?

The law requiring the Constitution of the United States and of Wisconsin, to be taught in our common schools, *is* desirable and wholesome. In the recent examinations held at Washington and elsewhere, under the new civil service rules, it was found that the applicants, while fairly qualified in other things, were most lamentably ignorant of the history and government of our own country. And every observant person knows how much ignorance exists on the subject among the voters. Now, of the children educated in our public schools, half are to be voters, and all are citizens of our state and nation. Aristotle said two thousand years ago: "That which contributes most to preserve the state is, what is now most despised, to educate children with reference to the state; for the most useful laws, and most approved by every statesman, will be of no service, if the citizens are not brought up in the principles of the constitution: of a democracy, if that form be by law established; of an oligarchy, if it be an oligarchy." (Politics, Book 5, chapter 9.) The object in having history and the constitution taught in our schools, is to inspire our children with an intelligent love for their country and her institutions.

The objections frequently made to the study of the constitution, sprang from defective methods of teaching, and a lack of suitable text-books. The true method of teaching the constitution, is for the teacher to select *those parts which will be of use to voters*, and teach the substance of these orally in general exercise

to the whole school. Classes can of course be organized among the older pupils, for the systematic study of the constitutions, with the aid of the text-books. For such classes, however, there are no suitable text-books. On the constitution of this state there has been nothing whatever published, and the books thus far published on the United States Constitution, are either beyond the capacity of classes in our common schools, or are otherwise unsuitable. Let the Constitution be taught in the proper way, and the objections to its study will vanish.—A. O. WRIGHT.

126.—When and by whom was America first discovered?

America was *first* discovered by some unknown person of the Mongolian race, in consequence of whose discovery it was settled by the aboriginal races, all of whom are offshoots of the Mongolian or Turanian race, as their language, physical characteristics, and geographical position prove. Wild guesses have been made that America was discovered by the Carthagenians, the Romans, by the Welsh prince Madoc, or by "the lost tribes of Israel." But the first discovery of this country by white men, which has been proved, is that of the Northmen under Leif, the son of Erick the Red, in the year 1000.—A. O. WRIGHT.

127. The first white person born in the present limits of the United States, was Snorri Thorfinnson, in the winter of 1007-8. From him were descended Snorri Stulason, of Iceland, the compiler of he Prose Edda, Finn Magnusen, the great northern antiquary, and the celebrated sculptor, Thorwaldsen.—A. O. WRIGHT.

128.—Parse *else* in this sentence—"I had nothing *else* to eat."

Else is an adjective, modifying nothing.—L. BOND, *Fond du Lac.*

129.—Will any one furnish the "Box" with a philosophical explanation of the phenomenon of frost crystallization as it appears upon windows in extreme cold weather. What causes it to assume such varied and fantastic forms, under apparently like conditions?

All substances in assuming the solid form tend to take a regular shape, called a crystal. This form is more or less perfect, it being modified by the various conditions under which it crystallizes. Unequal and too rapid solidification, foreign matter, movement and many other things introduce numerous variations, all of which can be explained by the laws of crystallography. Water generally solidifies in simple or compound crystals of prismatic or stellar form, the parts diverging at angles of about 60° or 120°, slight variations of the angle often causes the crystal to assume a curved form. Window-glass is often of unequal density and uneven surface, also has more or less foreign matter upon it; these things, with drafts of air, and various other causes, which must be studied in each particular case, cause all the variations of crystallization to be seen upon our windows. The "apparently like conditions" are only apparently alike, for the same conditions produce the same forms.—C., *Mazomanie.*

132.—What makes the water of the ocean salt?

Salt is one of the original principles of nature, and is mixed in greater or less quantities with most other bodies.

All rivers run into the sea and carry some salt with them, but no rivers run out of it, nor is any water taken from it except by exhalation or evaporation.

But chemists have demonstrably proved that no salt can ascend in either of these ways; and, consequently, all the salt carried into the sea, by the immense numbers of rivers that run into it, remained behind and occasioned its saltness.

Second answer—The water of the ocean could have become impregnated with salt in two ways:

1st. By chemical deposition of common salt (sodium chloride) upon the surface of a cooling globe.

2d. Let us suppose the ocean to be a body of pure water and the land to be what it now is. Common salt is found almost every where, being shown by spectrum analysis to exist where its presence was unsuspected before. It exists in immense beds, in various parts of the world, forming the mineral called Halite, which occurs in rocks of different ages. The water of almost all, if not of all rivers, contains more or less common salt in solution derived from the rocks, soil, etc. This salt being carried to the ocean is there mainly left by the evaporating water, and this process would cause in time, if not interfered with, a vast accumulation of salt in the sea. We may also suppose that the ocean may be in direct contact with beds of salt.

The theory of chemical deposition is the most probable one.—C. *Mazomanie.*

Third Answer.—The water of the ocean is salt because of salts held in solution. Whenever a body of water has no outlet it becomes salt, and usually much more so than the ocean itself. The streams are continually carrying down toward their outlets earthy and mineral matter of all kinds, which are washed from the country through which they flow. The earthy matters are deposited at the outlets of the streams and form deltas. The mineral matters, which are chiefly common salt and the various salts of magnesia, remain in solution and give the salty and bitter taste to the water.—A. O. Wright.

133.—A man and a boy can drink a barrel of water in $52\frac{1}{2}$ days. In what time will each drink it, if it take the boy $10\frac{1}{4}$ days longer than the man?

The *sum* of two numbers, and their *difference* given, to find the two numbers.

Add the sum and difference together and the result will be twice the larger number. Hence the boy will drink it in $31\frac{3}{8}$ days, and the man will drink it in $21\frac{1}{8}$ days.—L. Bond, *Fond du Lac.*

Second Solution.—Let x=the time it takes the boy to drink it, and y the time it takes the man to drink it; then $1 \div \left(\frac{1}{x}+\frac{1}{y}\right)=52\frac{1}{2}$, and $x-y=10\frac{1}{4}$; hence $xy=\frac{105}{2}(x+y)$, and $x=y+\frac{41}{4}$; hence $xy=\frac{105}{2}(x+y)$, and $x=y+\frac{41}{4}$; substitute, and we have $y^2+\frac{41}{4}y=\frac{105}{2}(2y+\frac{41}{4})$, from which we find $y=\frac{379}{8}+\frac{1}{8}\sqrt{178081}$, and $x=\frac{461}{8}+\frac{1}{8}\sqrt{178081}$.

$$y=\tfrac{379}{8}+\tfrac{1}{8}\sqrt{178081}, \text{ or } 100.124+ \text{ days.}$$

$$x=\tfrac{461}{8}+\tfrac{1}{8}\sqrt{178081}, \text{ or } 110.374+ \text{ days.}$$

The first values fulfill the conditions, the second are only for the eye,—they are practical values.—J. B., *Fond du Lac.*

135.—The area of a right angled triangle is 30 square rods; the sum of the sides is 30 rods; required the length of each side.

Let x=(perpendicular) altitude.

And y=base.

The area of a right angled triangle equals one-half the product of the base by the altitude, from this we have $\frac{xy}{2}=30$, clearing $xy=60$ (1).

The square of the hypothenuse equals the square of base + square of altitude, $(30-x-y)^2=x^2+y^2$. Performing the operation indicated, $900+x^2+y^2-60x-60y+2xy=x^2+y^2$ (2); transpose and reduce $2xy-60x-60y=-900$ (3); multiply (1) by (2) and substitute in (3) and divide by -60.

$x+y=17$ (4), squaring (4) and subtracting,
$x^2-y^2+2+y=49$ (5), 4 times (1).
$x-y=7$ (6); extracting the square root of (5),
$x=12$; $y=7$. 30−12−7=13.—A. C., *Madison.*

Second Solution.—Let the sides be represented by $2x$, y and $\sqrt{4x^2+y^2}$; then $xy=30=\sqrt{4x^2+y^2}+(2x+y)$ (1). $x=\frac{30}{y}$ (2).

$30-(2x+y)=\sqrt{4x^2+y^2}$; by squaring, reducing and substituting $y^2-17y=-60$, $\therefore$ $y=12$ or 5, $2x=5$ or 12, $\sqrt{4x^2+y^2}=13$.—J. B., *Fond du Lac.*

Third Solution.—Let x=hypothenuse, y=base, and z=altitude.
Then $x+y+2=30$ (1).
$y^2+z^2=x^2$ (2).
$\frac{y}{2}\times z=30$ (3).

Multiplying (3) by 2 and adding to (2), we have, $y^2+2yz+z^2=x^2+120$; extracting root, $y+z=\sqrt{x^2+120}$; substituting in (1), $x+\sqrt{x^2+120}=30$; transposing and squaring, $x^2+120=900-60x+x^2$, or

$60x=780$,
$x=13$.

In (3) $z=\frac{60}{y}$. Substituting in (1) we have, $13+y+\frac{60}{y}=30$. Clearing and transposing $y^2-17y=-60$, completing the square we find $y=12$.

Substituting in (1) $13+12+z=30$, or $z=5$.—L. B., *Fond du Lac.*

136.—In mixing starch with water, what causes it to appear *very thick* while stirring it, and *thin* when it is no longer being stirred?

In mixing starch with water, it is not very thick while stirring it and thin when it is no longer being stirred. The *starch* while being stirred is comparatively thin, being scattered throughout the water; but after capillary attraction has acted and stirring has ceased, gravity and cohesion overcome the adhesion, and the starch (its capillaries full of water) settles and is *very thick.*—PENCIL.

139. (Definitions required.)

Schreibersite—A phosphate of iron found in steel gray folia and grains. Only found in meteoric iron, and is composed of phosphorus, iron, nickel, etc.

Muscovite.—The scientific name for common or potash mica, (isinglass) one of the constituents of granite. It is in common use for the doors of stoves, etc. C., *Mazomanie*

NEW QUESTIONS.

140.—What is the difference in the construction of the following sentences: I ordered *him* to make a wagon. I told *him* told him to make a wagon. I wish *him* to go.—A. C., *Madison.*

141.—Analyze and parse the following: "You have taken me prisoner."

142.—Parse back in this connection, "back to thy punishment."

143.—What is the predicate in the following sentence: "How do you do."—L. BOND, *Fond du Lac.*

144.—What are the causes of the crystalline forms of minerals?—E. A.

145.—What kind of substance is borax, and where found?—*Ib.*

146.—Who was MICHAEL ANGELO?—*Ib.*

147.—Please point out the violations against good style in the following: "King Alfonzo of Spain had offered Bernardo del Carpio immediate possession of the person of his father, the king's prisoner, in exchange for the castle of Carpio, held by Bernardo. The latter gave up the stronghold; whereupon the mocking king caused the father to be put to death and his corpse placed on horseback, in which state it was led out to the son, the trusting Bernardo. In Mrs. Heman's ballad, Bernardo is represented as letting the false king go free. In Lockart's ballad, Bernardo lets the king hear from him again. By a combination of parts of the two ballads (placing that by Mrs. Heman's first) with slight alterations, we get a clear story."

> "With some good ten of his chosen men Bernardo hath appeared,
> Before them all, in the palace hall, the lying king to beard."

The Lion and the Fox.—"There was once a fox who had never seen a lion; and so, when he saw a lion for the first time, this fox was so scared that he did not know what to do."—P P. IVERSLEE.

148.—240 sheep, in 12 weeks, have eaten all the grass on 10 acres of land including the grass which was there when they began, and also, that which grew during the time they were grazing. In like manner 420 sheep, in 27 weeks, have eaten all the grass upon 30 acres. How many sheep, in 54 weeks, in a similar manner, can eat all the grass upon 72 acres, supposing the grass to grow uniformly, and to be the same upon each acre when the sheep began to graze? I would like to see a solution by common arithmatic?—JOHN BROWN, *Fond du Lac.*

149.—A father, on dying, directed in his will that his property, which consisted of one complete section of land in the extreme northeast part of the township in which he resided, should be divided among his children, which consisted of one son and four daughters, in the following manner, viz.: The son was to have the northwest quarter of the section as his portion. Each daughter was to have an equal portion of the remaining three-fourths of the section; but it was to be divided in such a way that each portion was to be exactly the same shape and size. A diagram of the section, showing each child's farm, also a description of each farm, according to government survey, is solicited.—*Ib.*

150.—Are the winters and summers of the north and south temperate zones of the same temperature?—*Ib.*

151.—A man man bought cows, sheep and lambs, 100 in all, for $100. He paid $10 for each cow, $3 for each sheep, and 50 cents for each lamb; how many did he buy of each kind?—L. BOND, *Fond du Lac.*

152.—A person being asked the hour of the day replied, that $\frac{3}{5}$ of the time past

noon equals $\frac{2}{3}$ of the time from now to midnight $+2\frac{2}{3}$ hours What was the time?

153.—A man bought sheep for $94; having lost 7, he sold $\frac{1}{4}$ of the remainder at prime cost, for $20. How many sheep had he at first? Arithmetical solution required.—D. M., *Windsor.*

154.—A circular field contains 7,854 acres; there is a dog in its center and sheep on its circumference; the dog runs to catch the sheep, and the sheep runs around on the circumference at the same rate that the dog runs; a line passing from the sheep to the dog always points to the circle's center. How far must the dog run to catch the sheep?—J. B.—F.

SCRAPS.

CONTRIBUTED BY PEN.

Paris in '70.—They did not starve in Paris in '70—at least the Upper Ten Thousand did not. Here is what His Fallen Majesty served up at a single ball at the Tuilleries: 900 bottles of champagne; 400 bottles of Bordeaux; 50 bottles of Madeira; 1200 pints of syrup(!); 200 quarts of iced coffee; 200 quarts of chocolate; 1200 quarts of punch; 200 quarts of tea; 2000 glasses of ice water; 3000 cakes and tarts; 100 large pies; 1200 pounds of meat; 350 fowls; 300 dressed larks; 12 big hams; 24 fish *entrées*; 12 huge dishes of gelatine; 24 huge dishes of salads; 16 huge dishes of truffles; 20 large *filets de boeuf*, and 3000 rolls. And all this disappeared within one short hour!

Power of Steam.—The steam produced by the heat of 5 lbs. of coal can do the same amount of labor as one man can do in ten hours. Thus, the 100 millions tons of coal produced in England, represents the working power of more than 133 millions of men laboring for three hundred days!

Gigantic Churches.—The seating capacities of some of the largest churches are truly enormous, although not near as great as that of the ancient theatres. The most remarkable are, St. Peter's, in Rome, which can accommodate 54,000 people; St. Paul's in Rome, and the cathedral at Milan, with room for 30,000; St. Paul's in London, and the cathdrals of Bologna, Florence, Antwerp, Notre Dame, and St. Sophia in Constantinople, seat about 20,000 each; the cathedrals of Pisa, and St. Stephens, in Vienna, have room for 13,000.

English Patents.—In England, inventions are made at the rate of about thirty per day. Some of these inventions are decidedly humorous, not to say funny. One man took a patent on an apparatus which holds the tail of the cow while the maid is milking. Another man invented a hair crimper, which serves seven purposes, viz: Hair-crimper, paper-cutter, dress-holder, scarf-pin, bouquet-holder, buckle and book-mark. But the neatest thing out is the "Snorer's Friend," which, if adjusted to the nose, prevents snoring.

National Greetings.—English; How do you do? (Mark the repetition of the word *do*, so characteristic of the active Anglo-Saxon race). French: Your servant! Austrian: God greet you! German: How does it go (with you)! Egyptian; How do you perspire? (In Egypt, copious perspiration is considered a sign of health). Chinese: Is your stomach all right? Dutch: Where are you going? Swedish: What are you thinking? Danish: Do you live well? Polish: are you happy?

A New Magnet.—It has been discovered that the balance wheel of a watch will, in time, become a magnet. The discoverer of this curious fact cannot account for it, but thinks that keys, pen-knives, and other steel-ware kept in the watch-pocket, and even a steel watch-chain, may seriously affect the regularity of the watch.

Robinson Crusoe's Island.—The island of Juan Fernandez has been settled by a number of German emigrants, who, under the leadership of an engineer, Robert Wehrhahn, formerly major in the United States army, have left the Fatherland for this remote spot. The only beings which the colonists found on their arrival, were wild goats, and a few wild horses and donkeys. As the island is an important whaling station, very beautiful, and well suited for agricultural purposes, it is supposed that the colony will thrive.

A Big Train.—If all the locomotives and trains of Europe were placed in a bee-line, they would reach all the way from St. Petersburgh to Paris. An idle Bohemian thinks the locomotives would resemble a battle line of elephants, with trunks upraised, and says he would like to see them chasing each other from the Neva to the Seine.

Humbug in Europe.—The scepter of Charlemagne, which, among other things, was shown to Napoleon I. and his attendants, has been discovered to be a forgery. It is simply the curiously carved staff or baton of a sexton of the 14th century, which the forgers embellished with inscriptions and symbols similar to those used in the 9th century.

Pins of Antiquity.—The Louvre contains a collection of pins taken from the vaults and grottoes of ancient Thebes. They are very similar to those in use among moderns, and are estimated to be at least 3,000 years old.

CONTRIBUTED BY D. M.

Ardent Spirits as Medicine.—Sir Astley Cooper wss one of the most eminent physicians and physiologists in England. He once said "that he never suffered ardent spirits in his house thinking them *evil spirits*," and added "that if the poor could witness the white livers, the dropsies, the insanity which I have seen as the effects of drinking, they would be satisfied that ardent spirits and destructive poisons are synonymous."

To Restore Frosted Potatoes.—It is said that potatoes which have been frost bitten may be effectually restored to their original goodness by allowing them to remain in the pits, after a severe frost, till the mild weather has set in for some days, and allowing them to recover gradually. If once exposed to the atmospheric air, no art can restore them. This process is so simple that it certainly merits a trial.

Gems of Thought.—Inviolable fidelity, good humor and complacency of temper, outshine all the charms of a fine face, and make the decay of it invisible. Frugality may be termed the daughter of prudence, the sister of temperance, and the parent of liberty. He that is extravagant will quickly become poor, and poverty will enforce dependence and invite corruption. It will almost always produce a passive compliance with the wickedness of others, and there are few who do not learn by degrees to practice those crimes which they cease to censure.

Routine of Education.—It is said that a gentleman, while attending an examination of a school where every question was answered with the greatest promptness, put some questions to the pupils which were not exactly the same as found in the book. After numerous ready answers to their teacher on the subject of geography, he asked one of them where Turkey was. One answered, rather hesitatingly, "*in the yard with the poultry.*" The answer is quite a suggestive one.

Chinese Barbers.—In the towns of China barbers go about ringing bells to get customers. They carry with them a stool, a basin, a towel, and a pot containing fire. When any person calls them, they run to him; and, planting their stool in a convenient place in the street, shave the head, clean the ears, dress the eyebrows and brush the shoulders; all for the value of little more than half a penny. They then ring the bell again, and start in pursuit of another customer.

Antimony.—It may not be generally known that antimony though not found in large quanties in this country, is extremely useful in the arts. It forms with lead, type-metal. The alloy has the property of expanding when cooling, thus filling the intristics of the mould and producing a sharp cast. When alloyed with brass, copper and tin, it forms the well-known Britannia metal. Britannia ware is largely used in household affairs, and scamps make it of much use to them.

First Printer in America.—The first printer in North America was Samuel Greene. The press he used was procured by Rev. Joseph Glover, who died in 1638, on his voyage to Massachusetts. "The Freeman's Oath" was the first thing printed—in 1839; the next an Almanac for New England, made by one Pierce, a mariner; and the third, the New England Version of the Psalms, in 1640. Green afterwards printed Eliot's Bible and the Laws of Massachusetts, Plymouth and Connecticut.

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The Giant's Causeway.—In the days of ignorance, this remarkable curiosity was considered some stupendous work of art; modern philosophers however look on it with a different eye. On approaching it from the sea, its first appearance is that of a bold, rocky mass, with extensive ranges of shelving, calculated for an immense promenade.

These rocks however, instead of being disposed in strata, form basalts or angular columns, so closely attached to each other that though perfectly distinct from top to bottom, scarcely anything can be introduced between them.

The formation of this curious natural production, has been accounted for by supposing that the whole body of the rock was once in a state of fluidity, being no other than the lava of a burning mountain; that the prodigious mass cracked in its cooling, into the forms which we now see; that it may since in some measure have been deranged by earthquakes; that these have swallowed up the volcano itself; and that the waters of the neighboring ocean now roll over the place where it once stood. Some geologists however, attribute all these effects to the agency of water.

SELECTIONS FROM GERMAN POETS.

TRANSLATED BY PEN.

[*From Mirza Schaffy.*]

I. POVERTY.

Poverty, it is the grave
Of divinest inspiration,
Makes thy noble soul the slave
Of some mean man's higher station.
Still, heart, do not despair.
Little souls may fret and cavil—
Grandly his allotted share
Of misfortune and of evil
A philosopher will bear.

II. HUMBLE ORIGIN.

The rose, aglow with colors rare,
Must spring from the ignoble soil;
The nightingale, before her toil,
Of tuneful love on worms, must fare!

III. RULE.

Wouldst thou do as I have taught thee?
To thy duty gladly hence!
If thy works be ever secret,
Be they of benevolence!

IV. TO A ZEALOT.

Make thou no converts, friend, at point of swords;
'Tis understood,
That wisdom ne'er to tyranny resorts
In doing good!

V. MUSIC.

Beauty and Art, illimitable strive
In competition for the human heart's
Adoring love—but still the glorious prize
Belongs to Music, noble Queen of Arts!

VI. TRUTH.

He who dares to *love* the truth,
Must his charger's bridle hold;
He who dares to *think* the truth,
Must bestride his charger bold;
He who dares to *speak* the truth,
Wings, nor arms must he unfold!

VII. INCOMPREHENSIBLE POETS.

If poets soar beyond thy comprehension,
'Tis well to lay the book aside,
For, friend, perhaps 'tis their intention,
With mysticism empty brains to hide!

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'Tis well to lay the book aside,
For, friend, perhaps 'tis their intention,
With mysticism empty brains to hide!

VIII.—TRUTH BEFORE KINGS.

When I was still the favorite of the Shah,
He once most bitterly complained to me,
That none would speak the truth to him; and see,
When I began to speak the truth, the Shah—
Enraged at my boldness, exiled me!

IX.—LANGUAGE OF THE EYES.

Eyes of gray
Prudence betray;
Brown eyes speak
Of frolic and freak;
Sweet eyes blue
Are tender and true;
But a black eye's wondrous, brilliant blaze,
Is ever dark like Allah's ways.

X. ADVICE.

Wouldst thou enjoy poetry's raptures divine,
And its fragrance fair?
Don't seek them in rhyme, be that ever so fine,
Gold floats not in air.

XI. THE GOOD THAT IS NEAR.

Seek thou not to obtain that from afar,
What's near to you,
Nor, needing light, reach for a distant star,
When lanterns will do!

XII. SUITING OTHERS.

When wisdom I sought,
A fool I was thought,
But was counted wise
In other men's eyes
When I aped folly's ways—
For fools none but themselves will praise.

XII. STOLEN THOUGHTS.

If an extra good thought doth arise
From the soul to the lips in a trice,
The dull ones cry quickly, "Now, pray,
Just what *I* was going to say!"

XIV. THEORY AND PRACTICE.

When I sang, "Be merry with the joyous;
Stoop not slavish to mere titled rank;
Be not proud nor haughty with the lowly!"
All were greatly praising what I *sang;*
But when I endeavored thus *to do,*
All exclaimed, "Oh, what a fool are you!"

XV. HIGHSPIRITEDNESS.

Keen blades are apter to get dull; but tell,
Therefore to use but dull ones, were it well?

Editorial Miscellany.

NATIONAL EDUCATIONAL ASSOCIATION.

STATE HOUSE, NEW HAVEN, CONN., January 10, 1873.

The Thirteenth Annual Meeting of the National Educational Association will be held in Elmira, New York, on the 5th, 6th and 7th days of August, 1873. Free return tickets are already promised on the New York and Erie, and other railroads centering in Elmira. A cordial invitation to hold the meeting in that city has been received, signed by the mayor and aldermen and sixty-five prominent citizens, including judges, editors, presidents of banks, clergymen, lawyers, and the officers of Elmira college. A warmer welcome was never promised to the Association. No efforts will be spared to render this meeting interesting and profitable. A large attendance is anticipated. Details as to railroad and hotel facilities, topics and lectures, will be seasonably given.

BIRDSEY GRANT NORTHROP, *President.*

S. H. WHITE, *Secretary.*

SPRING INSTITUTES.

The following is the list, as far as appointed:

TO BE CONDUCTED BY PROF. D. MC'GREGOR.

Dane, 1st district, Sun Prairie, March, 31.
Jefferson, Jefferson, April 7.
Richland, Richland Centre, April 14.
La Fayette, Shullsburg, April 21.
Rock, district No. 2, Clinton Junction, April 28.

TO BE CONDUCTED BY PROF. R. GRAHAM.

Outagamie, Appleton, March 24.
Portage, Amherst, March 31.
Eau Claire, Eau Claire, April 7.
Waushara, Auroraville, April 14.
Waupaca, Weyauwega, April 21.
Marquette, Oxford, April 28.

TO BE CONDUCTED BY ALBERT SALISBURY.

La Crosse, West Salem, March 18.
Sauk, Logansville, April 1.

COMPULSORY EDUCATION.

The following communication to the Department of Public Instruction shows at least that the present Legislature deems the matter referred to one that needs careful investigation:

WISCONSIN LEGISLATURE,
ASSEMBLY CHAMBER, MADISON, Feb'y 27th, 1873.

Hon. SAMUEL FALLOWS, *Sup't Public Instruction:*

SIR: I am directed to inform you that the Assembly has adopted Resolution No. 21, A.

WHEREAS, The general education of the masses is compatible with the advancement and the spirit that should characterize free institutions, and consequently it is the duty of the State to provide all proper means for the education of its people; therefore,

Resolved, That the Superintendent of Public Instruction be requested to make such investigations and inquiries as he may deem proper in relation to the best means, whether compulsory or otherwise, to advance the cause of education, and report the result of such investigations to the next Legislature, with such recommendations as he may see fit.

I am, yours respectfully,

E. W. YOUNG, *Chief Clerk.*

ATTENDANCE ON INSTITUTES.

The bill now before the legislature relating to the attendance of teachers on Institutes, has passed the Assembly and is in the hands of the Senate. There is a strong probability that it will become a law. The compulsory feature of the bill is very mild. It provides that a county superintendent may withold a certificate of the *third* grade from any teacher, who has attended a teachers' institute in the county: *provided*, such institutute is held during the *vacation* of such teacher, unless a satisfactory reason is given to the superintendent for absence therefrom. An appeal may be taken from the action of the county superintendent to the Superintendent of Public Instruction as in other cases.

We believe that such a law as the bill contemplates will work good. About three thousand teachers attended institutes last year, one half of the number receiving certificates. The teachers who do not attend most need the instruction imparted and the incidental benefits which arise from the contact of mind with mind at these institutes. As the Board of Regents of Normal Schools are making more comple provision than ever before for the professional training of teachers, partial though it must of necessity be, it would seem proper that somthing should be done to require teachers to accept such training. If the pending measure should carry in the legislature, we shall watch the working of the law with deep interest. We may be disappointed in the result, but we expect to see the names of a least four thousand teachers enrolled at the institues during the coming year.

A CORRECTION.—In some quotations, from the reports of the superintendents, on page 5 of the report of the State Superintendent, the following words, at the bottom of the page, are disjoined from the paragraph above them, to which they belong, and attached to the next paragraph. The result is that thus they are made to refer to the city of Mineral Point, when in fact they relate to Wood county:

"A marked change in public opinion has taken place in many parts of the county, as to the sort of teachers to be employed. 'We want a good teacher and will pay good wages,' has been said to me repeatedly. Districts that two years ago were willing to employ the poorest teachers, are now anxious to employ the best."

VISITOR.—J. W. BASHFORD, Principal of the High School at Mineral Point, has been appointed one of the visitors of the Whitewater Normal School, for 1872–3, in place of J. K. PURDY, deceased.

GRADED SCHOOLS AND THE UNIVERSITY.—The beneficial effects of the law bringing the graded schools into relation with the University of Wisconsin and the higher institutions of learning in the state, are already seen. In 1871, in seventy-two of the schools thirty-nine were fitted for college. In 1872, nearly one hundred and fifty were being prepared.

QUERY BOX.—We omitted to acknowledge a concise solution of problem 111, by QUISQUIS. We will give it next month, if the printers can get up the diagram illustrating the solution.

CORRESPONDENCE.

NATURAL SCIENCES IN COMMON SCHOOLS.

EDITORS OF THE JOURNAL:—In No. 2, Vol. III, of the JOURNAL, I notice an article "Read before the Convention of Principals and Superintendents, at Madison, December 27, 1872, by ALBERT SALISBURY, Broadhead"—"Shall a Knowledge of Natural Science be required for a second grade Certificate?" The author refers to "the new school law of Illinois" as suggestive of the article in question, and quotes from the same; and also shows us what grade of certificates are provided for, and upon what they are dependent, and names the sciences that the State Superintendent of Illinois has designated to be added to those that are named in the law. He quotes largely from Supt. BATEMAN'S exposition of the law, and his views as to its adaptation to the common schools of Illinois. He then alludes to the fact that the elements of the natural sciences have been taught for a year in the public schools of St. Louis with *very satisfactory results*. He then quotes from Supt. HARRIS' special report to the St. Louis Board of Education. Suffice it to say, that both Superintendents BATEMAN and HARRIS bring powerful arguments in favor of the introduction of the Natural Sciences into our common schools, for which they have my thanks, and should have the thanks of millions of their countrymen, and doubtless would have, could their views but be known to the millions.

Passing over much that to my mind would seem irrelevant to the question treated, and some things that savor of contradiction, I will notice a question or two of the writer: "Does that person properly understand arithmetic who knows nothing of its relations to other branches of mathematics?" I answer, most assuredly *he may*. "Can a jeweler make a good balance wheel while he does not understand the other mechanism of a watch?" Most certainly he may. And in regard to this question, "Is that person qualified to teach the history of his own country, or the science of his own language, who is ignorant of any world-wide system underlying the one or the other?" I answer, most certainly, and many are doing a valuable work of this kind every day; and a critical examination on these subjects, would put many of the graduates of our colleges to the blush. Now, whilst I admit that much that is said in that article is pertinent and well said, I cannot arrive at the same conclusions as does the author. A large experience as a practical teacher in the states of Connecticut, New York and Wisconsin, during a period of forty years, leads me to embrace the affirmative of this question, and in the absence of anything better which now suggests itself, I would be in favor of adopting by legislative enactment, the present law of Illinois. On this subject allow me to say, that I have yet to see that school so low in intellectual capacity that these sciences might not be taught with great profit to the teacher and pupils. To my mind, Illinois is making no "*doubtful* trial;" and as a Wisconsin man I protest against the idea of waiting for another state to make experiments for our benefit.

Respectfully yours, J. C. BRAINARD.

DANVILLE, Dodge Co., Wis., February 17, 1873.

REMARKS.—We do not understand Mr. SALISBURY as differing from his critic, on the main question. We take it for granted that he would agree, most heartily, with Mr. BRAINARD, that the natural sciences might be taught in every school, "with great profit to both teachers and pupils," so soon as they can be taught in a proper way.

There is, undoubtedly, to be a change made in the work of our common schools, and the agitation of the subject is needed to bring about the change. The matter has already been before the Legislature, and it is only a question of time. Work now done in the public schools is to a large extent mechanical and unfruitful, because consisting of the utterance of words and the memorizing of rules and abstractions, more than in the presentation and comprehension of facts, of ideas and of principles. It is also true the remedy consists in going back to nature; to her thousand objects, her methods, her teachings. But, unfortunately this cannot be brought about merely by statutory provisions. A change must,

be wrought *in the teacher*—that is, we must have a different body of teachers, who can not only go outside of books, but whose minds are more matured, cultured and expanded, and whose souls are imbued with both a knowledge and a love of nature and her teachings. Such teachers, if placed in our common schools, would not require much legislation to induce them to bring their pupils' minds in contact with nature and with living truth rather than books; nor would it be at all necessary to enlarge the formal curriculum of common school studies to enable teachers to do this.

But when and how shall our schools be supplied with such teachers as these? When the territorial arrangement of our system is so changed that all the schools, of a town or other proper division of territory, are placed under one intelligent board, the way will be open not only for proper local supervision and for re-arranging and grading the schools, but for introducing method and system, and especially for placing in each town, or other consolidated district, at least *one* teacher of the character above described, and one who shall be the center and sun of its educational work. It is obviously the province of our normal schools to furnish such a class of teachers, and not beyond their capacity, when they shall be developed and shall be enabled to rise up to their proper work of professional instruction and training; and it may be hoped that they will reach this point in not a remote future. Much more than this the six normal schools, when all in operation, cannot do.

In addition to this, local normal academies in sufficient number to meet the whole wants of the state must be provided for, and provided for at public expense. Not necessarily in every county—that is a matter of detail, but in as many localities as circumstances shall require. The instruction and training needed by the mass of the young teachers, must be brought near to them and surround them, beginning in the local district schools, by seeking out, encouraging and developing the best material, leading it to the highest grade and to the local academy, following it back to the schools in the character of under teachers and in its best and most promising examples, winning it up to the normal schools of higher grade, there to be trained for highest work. No system that comes short of this will ever meet our wants, nor essentially and permanently lift our public schools up to their proper standard of efficiency and excellence.—P.

THE SCHOOL HOUSE YARD.

STOCKBRIDGE, February 27th, 1873.

Messrs Editors:—I see in the JOURNAL there is some discussion as to setting out shade-trees in the school-house yard. I will give you my plan: Let the clerk take up a subscription and buy trees, if he cannot otherwise obtain such as he wants. I tried this plan last spring, and our yard of one acre and one-fourth, looks all the better. I put one row on the outside, and two through the center; I think if parents would make the school-houses and yards more ornamental, there would not be so many scholars out of school as there is at the present time. Yours, J. A. P.

REMARKS.—Friend P. is right, make the school-house and the school attractive, and it will cure most of the absenteeism and tardiness. The principal thing is to employ good teachers, and no others. Other good things will then follow. In regard to the ornamentation of the school grounds, it may be observed that straight rows of trees are rather stiff. Nature does not plant her trees in that way. Let the work in the yard be superintended by some person of taste as well as skill. Inexperienced persons are not apt to be successful in transplanting trees

By all means have some evergreens, ornamental shrubs and beds of flowers. Such a yard, with such a teacher, will be the best text-book in botany, and its attractions will do away some of the ruder sports, and tend in every way to refine and elevate the children—and their parents too. P.

"AND STILL WE MOVE!"

CHICAGO, February 16, 1873.

MESSRS. EDITORS:—In your February number of the WISCONSIN JOURNAL OF EDUCATION, I take notice of a piece ending thus: "Truth may smile in the benign light of the 19th century," and quietly reply to the Infallibilists, "And still we move."

Any person, in reading this article, can see that it is intended to cast a slur upon the Catholic faith, and, as the JOURNAL is edited to be read by Catholic educators and teachers, as well as Protestant, it seems to me no more than just that you allow me to state, through its columns, that I have just read from a book entitled "Galileo and the Roman Inquisition," that the work of Copernicus, "by the assistance of the Bishop of Ermeland (Gisio), is brought to a successful issue, and comes forth to the light, bearing on its front the name and the sanction of the head of the Catholic world." JUSTICE.

Reply.—We understand, by the "Catholic faith," the universal or common faith of Christendom. We do not think "Pen" intended any slur upon this faith, because "Pen" undoubtedly holds this faith. It is unquestionably true, that when the Pythagorean theory of the solar system was revived, the church generally thought it impugned the teachings of the Bible. *If* the then reigning Pope indorsed Copernicus' ideas, it is a remarkable proof of his advancement beyond the age. P.

Educational Intelligence.

BLACK RIVER FALLS.—We had the pleasure of visiting the school at Black River Falls a short time since, in company with J. H. HOFFMAN, Esq., County Superintendent. Prof. MORRISON, the Principal, has it well in hand. He is gaining ground every day in the confidence and esteem of the people, as a thorough and devoted teacher.

REEDSBURG.—The students of the graded school at Reedsburg, under the efficient management of their Principal, A. EARTHMAN, Esq., gave a very interesting exhibition on Saturday evening, Feb. 15. At its close the Superintendent of Public Instruction delivered a short address. The largest hall in the town was crowded to excess.

SAUK COUNTY.—A meeting of the Sauk County Teachers' Association will be held at Barraboo, Sauk county, Wis., on March 7th and 8th, 1873. A good programme is put forth, and the Executive Committee announce that teachers who attend will be entertained by the citizens of Baraboo free of charge. We bespeak a good gathering.

WINNEBAGO COUNTY.—There will be a meeting of the Winnebago County Teachers' Association, No. 1, held at Waukau, on Saturday, March 8th, 1873, with another good programme, winding up with an "experience meeting." The officers "expect all *live* teachers to make thorough preparation for the work of the association. Especially do they ask those whose names appear on the programme to come thoroughly prepared.

CARROLL COLLEGE.—This institution, located at Waukesha, Wisconsin, has been re-opened, under the care of its former principal, W. L. RANKIN.

Its especial objects are to "prepare students for the lower college classes, or to graduate those pursuing a high school course. Young ladies and gentlemen desiring to apply for a teacher's certificate, to prepare for some mercantile pursuit, or in general to supplement and extend their common school education, will find here the opportunity for a general review of studies, or for the more full acquisition of special branches required."

We are glad to infer, from the following additional words of the circular, that the trustees and principal find that there is more need of academic than collegiate work, and possibly it may become the first "county academy:"

"Aiming thus to fill at once somewhat the place of a county high school, of a preparatory academy, and of a normal institute, we feel that the institution, even if but measurably successful, must meet a felt want in the community, and must receive a cordial support."

GENERAL.

JOTTINGS.—Compulsory education has occupied the attention of several State Legislatures this winter, but with indifferent success so far. In the Iowa House, a compulsory provision was struck out by a vote of 20 to 54.——The new school code of California went recently into effect. By it only holders of first-grade certificates are eligible to the County Superintendency, and in counties containing two thousand people, the Superintendent must give all his time to the schools. School-grounds must be ornamented with trees and shrubbery wherever practicable. Equal pay is allowed to male and female teachers for equal labor.——The School Board of San Francisco has passed a rule discouraging, but not prohibiting, corporal punishment.——The first class in the Portland high school have agreed upon a dress reform, discarding for their school dress all overskirts, laces and velvets, and nearly all jewelry and ribbons.——Another good example is set by the Riverview Military Academy, in the rule that "the reading of dime novels and other pestilent literature is prohibited. Such books are unhesitatingly burned whenever found."——Williams College is boarding students in first-rate style for $2.50 per week.——Prof. TYNDALL has generously given a good share of the proceeds of his late lectures in this country to establish scientific scholarships.——Newport, R. I., will build a $130,000 high-school house this year.—*Michigan Teacher.*

FOREIGN.—The Germans have founded no new university for half a century. Their plan is to strengthen what they have.——Prussia now has eighty-eight normal schools, five of them for women alone. In its multitude of technical schools are some for booksellers and printers.——Austria has just ordered the attendance upon kindergartens of children of four to six years, and all normal students are to be taught FRŒBEL's principles and practice.——Saxony has lately made attendance of young artizans and others for three years upon evening schools compulsory.——Paris had a Free School of Political Science in successful operation during the past year.——Austria has just enacted compulsory attendance.—*Ib.*

There recently graduated at Howard University, in Washington, thirteen negro law students, one of whom was a woman.

The phonetic syetem of reading has been introduced into one of the schools of Burlington, Iowa, and received with marked approval.

UNIFORMS FOR FEMALE STUDENTS.—A writer in *Scribner's Monthly* asks the question, "Why is it not just as well for school-girls to dress in uniform as for boys?" and then adds, "There are many excellent schools in England where the girls dress in uniform throughout the entire period spent in their education. By dressing in uniform the thoughts of the pupils are released from the consideration of dress. There is no show of wealth, and no confession of proverty. Girls from widely-separated localities and classes come together, and stand or fall by scholarship, character, diposition and manners."

TEXAS.—The Bureau of Education, at Washington, has received information that that the majority in the Legislature of Texas has set about abolishing the free school system by preventing the collection of the school tax. The school population of Texas is 229,568, with 76,895 illiterate whites and 150,617 illiterate blacks. Its total population is 818,519, and its area 237,321 square miles. For this population and in all this vast area, in 1870, there were but two free school buildings. In spite of violent opposition and much maltreatment of teachers, the State Superintendent, in one year, succeeded in establishing over a thousand schools, with an enrollment of 63,504. The present season opened with an enrollment of 177,000 pupils. The recent action of the Legislature, in suspending the school tax, indicates that this work is all to be undone.

PENNSYLVANIA.—The number of teachers in the State is 13,368; average salary per month, of males, $41.71; of females, $34.60; paid for tuition, $2,864,113. The law requires trustees to keep their schools open at least five months per year, or forfeit all the public fund. Pennsylvania has 131,728 persons over ten years of age who can neither read nor write, but most of these are foreigners.

MISSOURI.—The annual report of the Superintendent of Common Schools shows that there are in the State, between the ages of five and twenty-one, 656,524 white, and 36,999 colored children, making a total of 963,493, an excess over the year 1871 of 39,050; the number attending school the past year was 389,956, an increase over 1871 of 59,886. There are in the State 6,608 school-houses, employing 8,862 teachers, of whom 3,105 are females, and 5,759 males; to pay these teachers the sum of $1,320,957 was necessary.

New Publications.

BOOKS.

APGAR'S GEOGRAPHICAL DRAWING BOOK. Philadelphia: COWPERTHWAIT & Co.

The authors (E. A. and A. C. APGAR, very properly remark, that the study of Geography consists principally in a study of the form and locality of the features of the earth's surface, and that "that form is easiest remembered which the hand is taught to trace." No teacher who makes the slightest pretensions to capacity, now teaches geography without map-drawing. This system, essentially that of triangulation, is presented in an improved form, with ingenious devices for representing the population of cities and towns, and the elevation of mountains. There is one defect in nearly all systems of map-drawing and all atlases—want of uniformity of scale. We think it a serious blunder to have the pupil draw Connecticut as large as Pennsylvania, and South America as large as Africa. When will publishers give us some sort of uniformity?

MAN IS LOVE. An American Story. By One Who Knows. 12mo. Fine cloth. $1.75. Philadelphia: J. B. Lippincott & Co.

As a work of fiction, this story has decided merit. The life of rich and poor, pro- and anti-slavery families, is well sketched, and sketched, we are pleased to

see, with manifest independence of French and English models. It is decidedly, as it claims to be, an American Novel, and one of a numerous class likely to grow out of the incidents and remembrances of the great struggle between the North and the South.

GETTING ON IN THE WORLD. This admirable book, written by Prof. William Mathews, Professor of Rhetoric and English Literature, in the University of Chicago, and published by S. C. Griggs & Co., Chicago, we shall fully review in our next issue, and from time to time shall enrich our columns with extracts from it.

PERIODICALS.

In place of the *Illinois Teacher* and the *Chicago Schoolmaster*, we have received for February a combination of the two under the name of the ILLINOIS SCHOOLMASTER. The number before us is nearly twice as large as either of the old monthlies. Its appearance indicates the intention of the publishers to give the teachers of Illinois a first-class journal. The State Superintendent announces it to be the official paper of his department. The *Illinois Teacher* was one of the first publications of the kind in the United States, being now nineteen years old. The *Chicago Schoolmaster* is six years old. This union of forces betokens good to the cause of free schools. The combined monthly is owned, edited and published by Aaron Gove and Edwin C. Hewett, Normal, Ill.

The current issue of *Lippincott's Magazine* is highly attractive in respect to both its articles and its illustrations. The most striking feature is the opening portion of Mr. Black's charming new serial novel, "A Princess of Thule." The style of this story is more popular and engaging than that of the author's last work, "The Strange Adventures of a Phæton," and gives every indication of being one of his best productions, fully equaling "The Daughter of Heth," a novel of rare interest from the same pen. "The Roumi in Kabylia," which forms the initial contribution, describes a tour through modern Algeria, and is replete with interesting delineations of a country which, although abounding in natural beauties and historical associations, is seldom visited by travelers, and but little known to the general reader. The engravings which accompany this article are beautifully executed. "The National Trans-Alleghany Water-Way," by Professor Thompson B. Maury, describes the method by which it is proposed to connect the waters of the Mississippi with those of the Atlantic Ocean, and thus establish direct communication between Omaha and the ports of Europe. The almost incalculable advantages which would result from the realization of this scheme render the present paper not only interesting but profoundly important. Several views and explanitory diagrams accompany the text. We have not time to notice the other interesting articles, but we observe that the publishers offer as club premium one of the most magnificent chromo-lithographs ever executed in this country, and upon the production of which eight thousand dollars have been expended. Yearly subscription, $4.00. Single number, 35 cents. Specimen number, with special and very liberal premium list and club rates, mailed, postage paid, to any address on receipt of 20 cents. J. B. Lippincott & Co., Publishers, 715 and 717 Market street, Philadelphia.

THE PHRENOLOGICAL JOURNAL for March contains a good portrait and sketch of William F. Havemeyer, mayor of New York city; The Problem of Life; Driven to Death; Indian Relics, and our Indian policy, a well illustrated and sensible article; A Penal Colony for Criminals; Mrs. Mary Somerville, the Scientist, with portrait; What shall our Boys do? Dreams and their Causes; Longevity in the Professions; "I Cannot Quit It," or the Inebriate's Plea; A Good Memory, how to acquire and retain it; The Celt; The Red Deer of America; Hugh Stowell Brown on Americans, etc. Price, 30 cents. A year's subscription, with a "taking" chromo, $3.00. Address S. R. WELLS, 389 Broadway, N. Y.

VIENNA EXHIBITION.—In compliance with the suggestion of United States Commissioner, Van Buren, Messrs. Wilson, Hinkle & Co., of Cincinnati, are about sending to Washington, to be forwarded thence to Vienna, a complete set of their educational publications, comprising a hundred volumes. They are intended for exhibition in the educational department of the International Exposition, after which they will be donated to the Strasbourg Library.